



# ANNUAL REPORT

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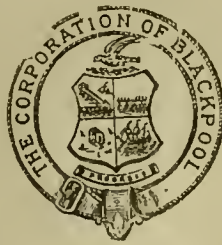
## HEALTH OF BLACKPOOL

FOR 1898.

BY

A. JASPER ANDERSON, M.A., M.B., Oxon., D.P.H. Cantab.

Medical Officer of Health.



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Blackpool :

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1899.



*To the Mayor, Aldermen and Burgesses of  
the Borough of Blackpool.*

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MR. MAYOR AND GENTLEMEN,

I have the honour to present to you my Eighth Annual Report on the Health of Blackpool, containing an account of the work of the Sanitary Department during the year 1898.

You will notice that the growth of the town has been so rapid that the population estimated on the usual method of computation has increased by 5,180 persons. The general death-rate was lower than usual, being much below the average.

I view with great satisfaction the speedy completion of the drainage scheme for the south of the Borough, and the commencement of pumping operations at the two pumping stations; also that the contract has been let and the work started upon for laying the new sewer outfall. It is to be hoped that this work will be proceeded with as quickly as possible, will be executed in a thorough manner, and that the outlet will be carried out to sea well below extreme low water mark.

In my reports for 1896 and 1897, I ventured to make several suggestions, some of which have been, or are being, carried out. The following recommendations have not yet been adopted :—

“(iv.) That plans be got out for enlarging the Infectious Diseases Hospital, and improving the accommodation for suspicious cases of infectious disease, and for discharging patients.”

“(v.) That the question of making other provision than the Old Sanatorium for small-pox cases be thoroughly discussed.” [This has been lately settled by entering into the combination of the Fylde Garstang, and Preston Unions.]

“(vi.) That the joints of all drains, whether of new or old houses, be required to be made of such materials, and in such a manner that they will withstand the water test, both when bare and when covered in.”

“(vii.) That the ground or basement floor, or the ground beneath such, be required to be cemented, asphalted, etc., in accordance with the bye-law in that behalf.”

“(viii.) That automatic flushing tanks be provided at the dead ends of the branch sewers.” It is advisable that sea-water be used for this purpose.

“(ix.) That public baths be provided for the use of the inhabitants.”

To these I have to add that determined efforts be made to have all front streets, back streets and passages, properly ‘formed’ with an impermeable surface, and that all back yards be either flagged or concreted.

I have again to thank the staff in the Sanitary Department for the valuable and ungrudging services they have rendered me during the past year.

I am, Mr. Mayor and Gentlemen,

Your obedient Servant,

A. JASPER ANDERSON,

*Medical Officer of Health.*

Public Health Office, Blackpool,

February, 1899.

# REPORT.

## 1.—VITAL STATISTICS.

### A.—SUMMARY.

Area of Borough (exclusive of foreshore).....	3,495 acres	
Population (Census April 6th, 1891).....	23,846 persons	
Persons per House as per Census .....	4·84	
	1897.	1898.
Rateable Value (General District Rate).....	£282,551	£307,370
Do. (Borough Rate) .....	£290,381	£315,776
No. of Dwelling-Houses on Rate Book... ..	8,665	9,673
Do. do do empty... ..	369	317
Population of Residents estimated at middle of year from No. of inhabited houses .....	40,234	45,414
Density of Population (persons per acre) .....	11·51	12·99
Birth-rate (per 1,000 inhabitants) .....	26·25	27·74
Death-rate (gross) Do. ....	18·54	16·99
Infant Mortality (per 1,000 births) .....	191·3	177·7
Zymotic-rate (per 1,000 inhabitants) .....	2·78	2·99
Death-rate (corrected for Visitors) .....	15·26	13·85
Do. (corrected for age and sex distribu- tion ; factor 1·129) .....	17·23	15·63
Infant Mortality (corrected for Visitors) .....	168·5	163·5
Zymotic-rate (corrected for Visitors) .....	2·36	2·49

### B.—POPULATION.

The population has been estimated, as in former years, by multiplying the number of inhabited houses in each of the six wards of the town by the average number of persons per house for each ward, as given by the last census. This gives the population for each ward, and their sum is the population of the town.

The accuracy with which this estimate is made controls that of all the rates deduced therefrom. The difficulties of making a correct estimate increase with the number of years that have elapsed since the last census year. But so long as the estimates are made each year on the same basis, and there is no alteration in the character of the population, the various birth and death rates of the town for the different years will be comparable *inter se*, extreme caution being taken, however, before making comparisons with the corresponding rates of other districts.

There were in August, 1898, 9,356 inhabited houses, and a resident population (excluding visitors staying in the town) of 45,414. All rates in this report, unless otherwise stated, are calculated upon this estimated population. There were 1,008 more houses on the rate-book in 1898 than in 1897. The population for 1898 would have been 34,673 had the rate of increase of the town since 1891 been equal to the rate between 1881 and 1891.

The increase of population over the previous year has been 5,180, made up of 631 (the *natural increase*, excess of births over deaths), and 4,549, the excess of immigrants into, over emigrants from, the Borough.

The greatest increase (2,385) has taken place in Foxhall Ward, and the next (1,111) in Claremont Ward.

#### C.—BIRTHS.

During the year, 1,245 births occurred in the Borough, but to these must be added as belonging thereto 15 births in the Kirkham Workhouse, *i.e.*, 1,260 births (670 males and 590 females). The birth-rate was 27·74 as compared with 26·25 last year, and 23·91 for the quinquennium 1891-95. For England and Wales the rate during 1898 was 29·4, and for the 33 Great Towns 30·3. The births include 73 illegitimate children, *viz.*, 40 boys and 33 girls. The percentage of illegitimate births of total births was 5·79, and the rate of illegitimate births was 1·607 per 1,000 inhabitants. Amongst 1,000 females between the ages 20 and 45 years, there were 120·48 births, and 6·98 illegitimate births.



## D.—DEATHS.

The deaths registered during the year were 772 ; and of these 143 occurred amongst persons staying temporarily in the town, and belonging to a population not included in the estimate of 45,414 persons. There were, therefore, 629 deaths amongst residents during the year—including 16 deaths in Kirkham Workhouse, which is out of the Borough, 3 in the Manchester Royal Infirmary, and 1 in St. Mary's Hospital, Manchester. The gross death-rate was 16·99, and the rate amongst residents was 13·85. These rates are lower than they have been during any year with the exception of the years 1888 and 1894. The death-rate corrected for age-and-sex distribution, to render it comparable with the Registrar General's rates for other districts was 15·63.

The death-rate for England and Wales during 1898 was 17·6, and for the 33 great towns 19·0. The death-rate for the 67 other large towns was 17·2.

In Table A in the Appendix it will be seen that spaces are left for deaths occurring within the district and not belonging thereto, and also for deaths occurring outside the district but belonging thereto, and also spaces for classifying the same under certain age-groups and certain diseases. The deaths occurring within a district and not belonging to it are usually carefully inserted and allowed for in calculating the death-rate of the district ; but the deaths amongst residents of the district occurring outside are not, because at present there are no means of gaining full knowledge of such deaths. Thus, for example, the 143 deaths excluded by me as those of visitors will not be included in the death-rates of the districts from whence they came to Blackpool. There is a distinct necessity for some clearing-house arrangement for dealing with such deaths and for informing the Medical Officer of Health of the district to which the deceased person belonged of the fact and date of the death, the cause of death and other particulars.

The population and the rates of the six wards of the town are given in the following table, the population of each ward being calculated on the number of the inhabited houses. The average of the rates for the five years 1891-5 are given for comparison.

**TABLE I.**

WARD.	Population 1898.	Birth Rate.			Death Rate.			Zymotic Rate.		
		1897	1891-5	1898	1897	1891-5	1898	1897	1891-5	1898
Claremont	7,572	23·84	24·06	22·85	10·83	14·05	12·28	1·70	2·07	2·11
Talbot .....	10,527	30·52	29·09	35·24	18·46	17·37	16·24	3·46	2·18	3·89
Bank Hey	2,136	11·70	11·87	17·32	10·30	12·84	13·11	0·47	1·29	0·46
Brunswick	6,413	26·14	21·32	25·41	15·29	14·54	16·21	2·47	1·15	2·81
Foxhall....	12,489	28·01	25·65	30·27	15·14	14·84	12·97	2·67	1·98	1·92
Waterloo..	6,277	21·78	20·76	21·19	15·77	15·19	11·15	1·13	1·75	2·86

The deaths in Kirkham Workhouse are allocated to the wards from whence the patients were removed.

The order of the birth-rates is Talbot, Foxhall, Brunswick, Claremont, Waterloo and Bank Hey, varying from 35·05 in Talbot to 17·32 in Bank Hey. The rates are on the whole higher than for the year 1897, and the order of the wards is the same.

The death-rates from all causes are the highest in Talbot Ward and the lowest in Waterloo Ward. For zymotic diseases the death-rate is the highest in Talbot and the lowest in Bank Hey Ward.

#### DEATHS IN CERTAIN AGE-GROUPS.

The death-rates per 1,000 *persons living within six definite age-groups* have been calculated, as also the rates for a thousand of each sex living within these limits, and are given in Table C in the Appendix.

Of a thousand children under five years old 57 died, as compared with 62 in 1897, and 50 in 1896. Males died in the proportion of 70 to 46 females.



In the age-period over 5 and under 15 years, males died in the proportion of 2·7 to 2·08 females out of 1,000 of each sex.

From 15 years to 25 years, the death-rate for males was 4·36 and for females 3·04 per 1,000.

Over 25 and under 65 years, the death-rate for males was 12·01 and for females 9·23, as compared with 13·5 and 9·58 respectively in 1897.

The death-rates in the age-group, 65-75 years, were 49·6 for males and 50·62 for females, as compared with 67·57 and 37·21 respectively in 1897.

Over 75 years the death-rate amongst males was 139·58 and females 126·58, the corresponding rates in 1897 being 142·5 and 174·6. This alteration is mainly due to the small numbers entering into calculation at this advanced age.

#### DEATHS OF VISITORS.

In health resorts it is necessary to deduct from the total deaths those occurring amongst persons staying in the town. Each death is inquired into, and after that inquiry a decision is come to as to whether the deceased was a visitor or not. In 1898 it was decided to exclude 143 deaths as those of visitors, viz., 69 males and 74 females. Thirty-six of these were under five years of age, and 107 above. There were 7 deaths from phthisis, 23 from respiratory diseases, 21 from heart disease, and 8 from injuries, amongst these deaths. There were 23 deaths from the seven zymotic diseases, in some of which cases either infection or invasion of the disease had taken place before arriving in the town.

#### LENGTH OF RESIDENCE IN BLACKPOOL OF PERSONS WHO DIED DURING THE YEAR 1898.

As usual I have prepared Table II. to show the length of time persons who died in 1898 had lived in Blackpool, classifying the same into six age-groups.

TABLE II.

Length of Residence of Persons who died during the year 1898.

AGE GROUP.	Deaths.	LENGTH OF RESIDENCE IN BLACKPOOL.													Born in Blackpool.		
		7 days and under.	14 to 7 days.	1 month to 14 days.	3 months to 1 month.	6 months to 3 months.	9 months to 6 months.	12 months to 9 months.	2 to 1 year.	3 to 2 years.	4 to 3 years.	5 to 4 years.	15 to 5 years.	25 to 15 years.		Over 25 years	Indefinite.
Under twelve months .. .....	224	2	4	4	4	4	3	1	...	...	...	...	...	...	...	...	202
1 year and under 5 .....	64	4	2	2	1	1	...	2	4	...	...	...	...	...	...	...	48
5 and under 15 .....	26	1	...	1	1	...	2	1	1	2	...	2	2	...	...	...	13
15 and under 25.....	44	3	1	2	3	2	3	...	4	4	3	1	3	3	...	...	12
25 and under 65.....	264	14	11	13	13	11	4	3	21	16	12	11	56	36	17	1	25
65 and over .....	150	4	3	9	11	2	1	1	6	9	5	4	29	22	26	...	18
Totals.....	772	28	21	31	33	20	13	8	36	31	20	18	90	61	43	1	318

## INFANT MORTALITY.

There were 224 deaths of children under twelve months of age, and 1,260 births, *i.e.*, a rate of 177·7 per 1,000 births, as compared with 191·3 in 1897, 158·5 in 1896, and 206·3 in 1895.

Of the 224 deaths, 18 were of children not born in Blackpool. Leaving these out of consideration the corrected rate is 163·5, as compared with the corresponding rates for 1897 of 168·5, 145·7 for 1896, and 169·1 for the five years 1891-5. (See Table V. for the complete figures).

From these figures it will be seen that the infant mortality is slightly below the average.

In Table F (in the Appendix) the quarterly rates are given, from which the rate is seen to be 235·1 in the third quarter, 196·5 in the fourth, 118·8 in the first, and 104·1 in the second.

For 1897 the corresponding rates were 215 in the third quarter, 176 in the fourth, 126 in the first, and 146 in the second.

During 1898 in England and Wales, 161 infants under 1 year old died out of 1,000 births. For the 33 great towns, the rate of infant mortality in 1898 was 178, ranging from 150 in Croydon, 153 in Huddersfield, 156 in Portsmouth, and 158 in Cardiff, to 206 in Blackburn, 208 in Gateshead, 212 in Salford, and 225 in Preston.

The causes of death are classified in the adjoining table under several headings, and also according to the age at death. As in previous years 'Congenital Debility' and 'Asthenia' have been classified under premature birth, and 'Marasmus' under atrophy.

**TABLE III.**—DEATHS, with AGES and CAUSES, of Children under 12 months old in 1898.

CAUSES OF DEATH.	AGES BY MONTHS.												TOTAL.											
	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd week.	3rd week.	4th week.	1st month.		2nd do.	3rd do.	4th do.	5th do.	6th do.	7th do.	8th do.	9th do.	10th do.	11th do.	12th do.
Premature Birth.....	12	3	3	4	...	...	...	22	7	5	...	34	3	1	1	...	...	...	...	...	...	...	...	39
Atelectasis .....	...	1	...	...	...	...	...	1	1	...	...	2	1	...	...	...	...	...	...	...	...	...	...	3
Congenital Malformations .....	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
Whooping Cough .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Measles .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteritis .....	...	...	...	...	...	...	...	1	...	...	...	1	...	1	1	...	...	...	...	...	...	...	...	...
Diarrhoeal Diseases .....	...	...	...	...	...	...	...	...	4	5	...	9	11	5	14	9	7	7	2	2	1	5	...	3
Erysipelas .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	81
Syphilis .....	...	...	...	...	...	...	...	1	...	...	...	1	2	...	...	1	...	...	...	...	...	...	...	...
Liver Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Dentition .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases of Digestive Organs .....	...	...	...	...	...	...	...	...	1	...	1	1	3	...	1	1	...	...	...	...	...	...	...	...
Convulsions and Diseases of Nervous System .....	...	...	1	1	...	...	...	2	1	1	...	4	...	4	...	2	2	2	1	2	...	1	1	19
Tubercular Meningitis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2
Tabes Mesenterica .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2
Other Tubercular Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Atrophy .....	...	...	...	...	...	...	...	1	...	...	...	1	1	1	4	1	1	1	1	...	...	...	...	11
Diseases of Respiratory Organs .....	...	...	...	...	...	...	...	1	1	1	...	3	3	3	1	7	3	5	1	3	1	1	4	35
Injury at Birth .....	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Navel Hæmorrhage .....	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Suffocation .....	...	...	...	1	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Other Violence ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
All other causes.....	3	1	...	...	...	...	1	5	...	1	...	6	1	1	1	...	...	2	1	...	1	...	...	13
All Causes .....	16	4	5	6	...	...	1	32	14	12	8	66	25	15	25	23	16	18	11	7	4	4	10	224

Six of these cases were uncertified, the causes of death being stated to be convulsions in one case, natural causes in two, diarrhœa in one, and premature birth in two.

Five inquests were held :—(i) a child nine months old, verdict, “misadventure, opium poisoning”; (ii) natural causes, meningitis, ten weeks old; (iii) illegitimate child, verdict, “asphyxia, from want of attention at birth”; (iv) “hæmorrhage and interference with the breathing, wilful murder against the mother”; (v) “misadventure, asphyxia whilst in bed with mother”; in this case of overlaying the child was found dead in bed on Sunday morning.

Of the 224 deaths, 18 of the children had neither been born in Blackpool nor Kirkham Workhouse, three of which being illegitimate. Of the remaining 206 children, 179 were legitimate and 27 illegitimate. During the year there were 1,187 legitimate and 73 illegitimate births. Hence, out of every 1,000 legitimate births there were 150·8 deaths, and 369·9 out of 1,000 illegitimate births during the first year of life. The figures of the similar rates for the five years 1891-95, were 162·7 and 279 respectively.

In Table IV. the deaths of children under 12 months old for the years 1892 to 1898 are given, distributed into wards.

**TABLE IV.**

Number of Children under 1 year old who died in the respective Wards.

WARD.	1892	1893	1894	1895	1891-5	1896	1897	1898
Claremont.....	11	18	6	20	78	20	22	24
Talbot.....	24	42	34	55	179	40	57	58
Bank Hey.....	3	5	2	3	15	9	...	7
Brunswick.....	17	19	18	23	91	20	23	35
Foxhall.....	16	29	25	56	159	41	49	60
Waterloo.....	20	10	11	12	60	7	25	22
TOTAL.....	91	123	96	169	582	137	176	206

Ten of the fifteen births in Kirkham Workhouse have been allocated to the wards from which the mothers were taken to the workhouse. In the other five cases it has not been possible to trace the previous addresses of the mothers. We have thus 173 births in Claremont Ward, 371 in Talbot, 37 in Bank Hey, 163 in Brunswick, 378 in Foxhall, and 133 in Waterloo.

From these the rate of mortality for each ward for the year has been calculated, and is given in Table V. along with the corresponding rates for the years 1892 to 1898.

**TABLE V.**

INFANT MORTALITY.—Deaths of Children under 1 year old  
per 1,000 Births.

WARD.	1892	1893	1894	1895	1891-5	1896	1897	1898
Claremont.....	129·4	209·3	62·5	183·5	172·5	142·8	142·8	138·7
Talbot .....	119·4	212·1	134·3	201·4	162·8	135·6	184·4	156·3
Bank Hey.....	100·6	263·1	62·5	90·9	112	25·0	...	189·1
Brunswick.....	158·8	177·5	148·8	200·0	168·2	160	144·7	214·7
Foxhall .....	111·9	177·9	161·3	231·4	187·2	166·6	173·1	158·7
Waterloo .....	263·1	153·8	159·4	115·4	163·9	79·5	215·5	165·4
Rate for Borough.....	141·9	192·8	132	191·6	169·1	145·7	168·5	163·5

**MORTALITY FROM ZYMOTIC DISEASES.**

The seven principal zymotic diseases, viz. :—Small-pox, scarlet fever, diphtheria (including membranous croup), 'fever,' measles, whooping cough, and diarrhoea caused 136 deaths, as compared with 112 in 1897, and 73 in 1896. Of these 23 were visitors. The zymotic rate per 1,000 inhabitants was 2·99, and 2·49 deducting the deaths of visitors.



For England and Wales the rate was 2·22, and for the 33 English towns 2·85.

There were no deaths from small-pox, 5 from scarlet fever, 3 from diphtheria, 2 from 'croup,' 16 from 'fever,' 7 from measles, 2 from whooping cough, and 101 from diarrhœa.

The zymotic rate from the chief zymotics, deducting the deaths from diarrhœa and whooping cough, was 0·726, as compared with 1·2676 for 1897 and 1·21 for the 33 English towns.

The diarrhœal rate was 2·224, as compared with 1·22 for the 33 great towns.

#### MORTALITY FROM OTHER DISEASES.

*Phthisis* caused 52 deaths, including 7 visitors, giving a death-rate of 1·14, and deducting visitors of 0·99. For 1897 the corresponding death-rates were 1·069 and 0·795 respectively.

*Diseases of the Respiratory Organs* caused 138 deaths, of whom 23 were visitors. The death-rate was 3·039 as compared with 3·753 in 1897. The death-rate corrected for visitors was 2·532. The deaths from lung diseases other than phthisis constituted 17·9 per cent. of the total deaths as compared with 20·2 in 1897.

The deaths from diseases of the respiratory organs were equally numerous in the second and fourth quarters.

*Influenza*. Seven deaths were certified as primarily due to this cause, viz. : 3 each in the first and second quarters and 1 in the third quarter of the year. In the fourth quarter there were 2 deaths in which influenza was mentioned as a secondary cause.

*Alcohol* was certified as the primary cause of death in 4 cases, 3 males and 1 female—2 of these being visitors. In 20 cases (13 males

and 7 females), death was referred to disease of the liver or other diseases, under such circumstances that alcohol was most probably the primary cause of death. Therefore 0·088 per 1,000 persons were certified as dying from alcoholism in Blackpool, as compared with 0·224 in 1897 and 0·082 in 1896. The rate for England and Wales during the five years, 1886-90, was 0·055.

*Cancer* caused 29 deaths (7 amongst visitors) as against 33 in 1897 and 20 in 1896. There were 10 males and 19 females. There were 12 deaths from disease of the digestive tract, 4 from the liver, 6 from the uterus and its appendages, 2 from the breast, and 5 others from disease in other parts of the body.

The cancer death-rate was 0·638, as against 0·8202 in 1897, and 0·546 in 1896.

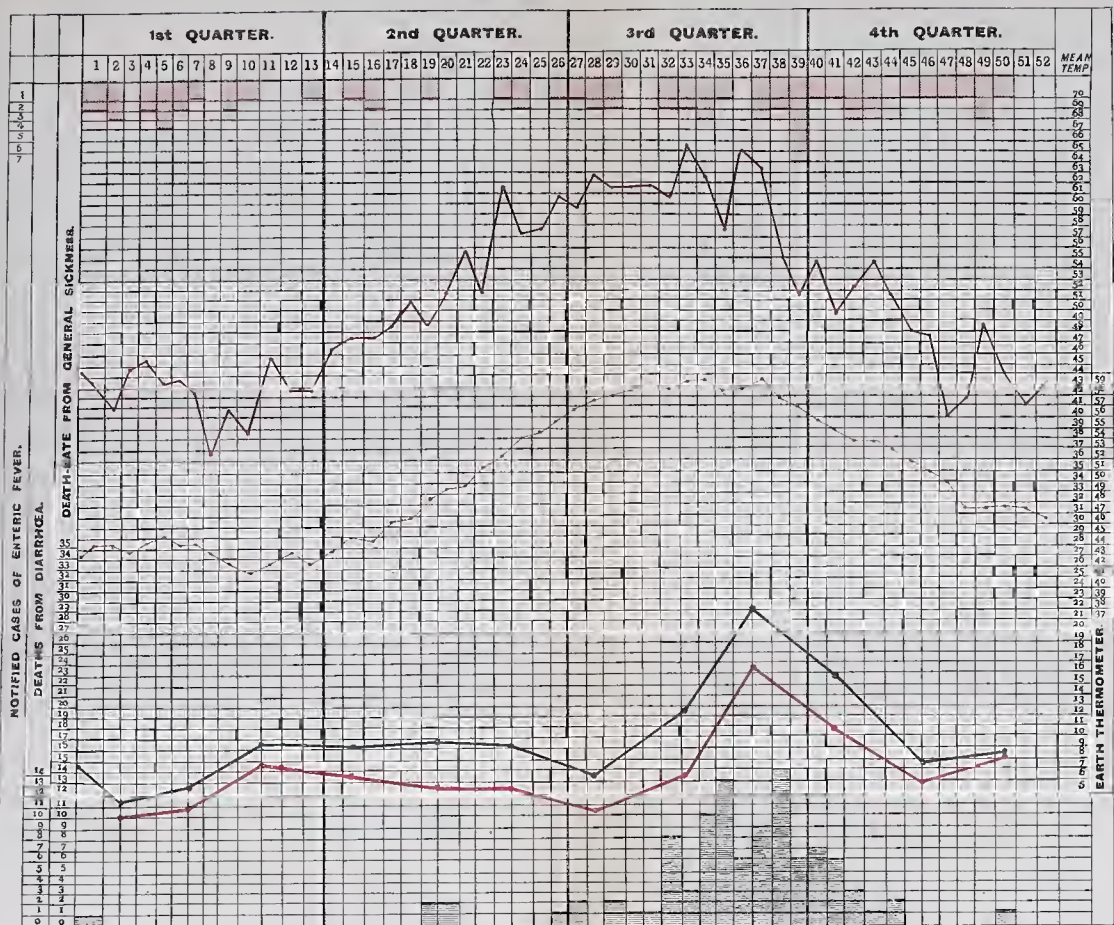
The deaths due to tubercular affections other than phthisis, were 13, viz.: 1 tuberculosis, 7 tubercular meningitis, 2 tubercular peritonitis, 1 tubercular cellulitis, 1 tubercular ulceration of the bowels, and 1 tubercular disease of the ankle.

The following deaths occurred after confinement or mis-carriage :—(i) parturition 12 days, puerperal septicæmia 12 days ; (ii) pulmonary phthisis, asthenia, mis-carriage ; (iii) parturition 14 days, peritonitis 11 days ; (iv) parturition 14 days attended by mid-wife, puerperal septicæmia, &c., 11 days ; (v) peritonitis 14 days, abortion, general acute peritonitis 6 days ; (vi) puerperal septicæmia 7 days, exhaustion.

The rate of deaths after confinement per 1,000 births was 4·76 compared with 10·4 in 1897 and 6·38 in 1896.

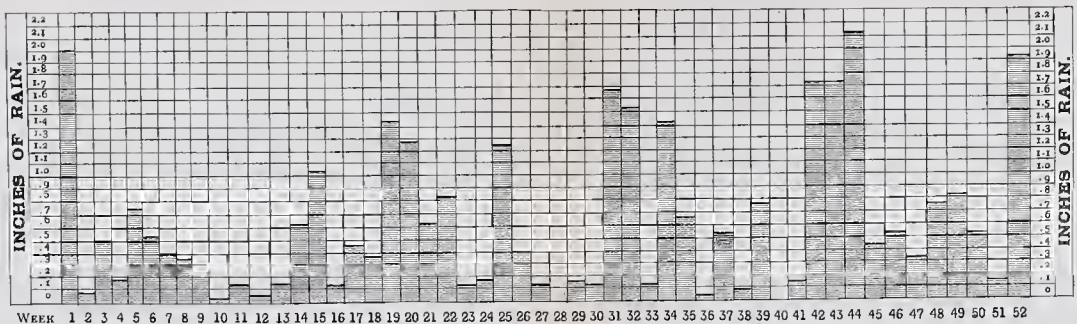
The deaths from *injuries* were 16, of whom 8 were visitors, as against 9 in 1897, and 16 in 1896.

# CHART I.



DEATH-RATE (Monthly) FROM ALL DISEASES  
 Do. OF RESIDENTS ONLY  
 TOTAL DEATHS (Weekly) from DIARRHOEA  
 NOTIFIED CASES (Weekly) OF ENTERIC FEVER  
 MEAN TEMPERATURE (Weekly) at 9.0 a.m.  
 MEAN TEMPERATURE OF SOIL (Weekly) at Depth of Four Feet

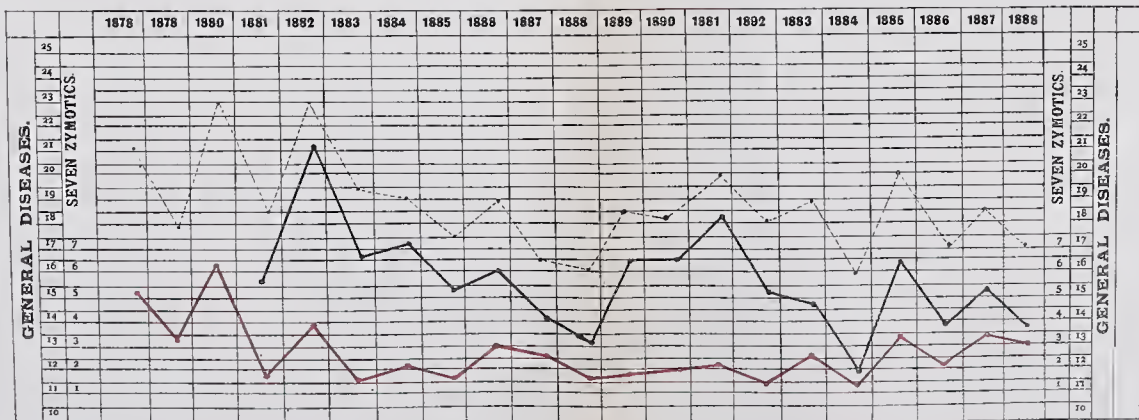
# CHART II.



# CHART III.

## DEATH RATES.

From (1) GENERAL DISEASES  
 " (2) " DEATHS OF VISITORS DEDUCTED  
 " (3) SEVEN ZYMOTIC DISEASES







The *inquests* held during the year were 33, with the following verdicts :—

Injuries—

By being run over.....	1
By falling.....	6
In other ways.....	5
	— 12

Suicide—

By hanging.....	1
By poisoning .....	1
	— 2

Wilful murder .....	1
Natural causes....	3
Accidentally drowned.....	5
Suffocation .....	2
Opium poisoning .....	2
Overlain, excessive drinking, &c. ....	6
	—
	<u>33</u>

There were 26 deaths, the causes of which were uncertified either by the Coroner or a Medical Practitioner. Therefore 3·37 per cent. of the total deaths were uncertified, as compared with 4·42 per cent. in 1897.

Chart I. gives graphically the monthly death-rates, the black line giving the gross death-rates, the lower red line the corrected death-rates, the upper red line the mean weekly temperature. The lower shaded spaces denote the weekly deaths from diarrhœa, and the upper spaces shaded red the cases of enteric fever notified each week. It is noteworthy how the deaths from diarrhœa occur whilst the earth thermometer reads above 56° F. I am again able to give the temperature of the soil at a depth of four feet. The mean weekly temperature of this earth thermometer is denoted by the dotted red line.

Chart II. gives the rainfall for each week of the year.

Chart III. gives the several death-rates for the last twenty-one years.

Tables A, B, C, D, E, F, G, H, K, and L, in the Appendix, give further details of the vital and mortal statistics as compared with previous years.

The accompanying table (Table VI.) gives a revision of the deaths from 15 causes during the last twelve years.

**TABLE VI.**

	POPULATION.												
	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898
	19,550	20,380	20,540	21,661	24,312	23,846 Census.	26,470	28,389	30,337	32,943	36,638	40,234	45,414
Small-pox .....	...	...	...	...	...	...	...	1	2	...	...	...	...
Measles .....	10	...	5	2	8	10	...	4	6	3	4	23	7
Scarlet Fever .....	5	12	4	1	5	4	4	11	4	11	9	6	5
Diphtheria .....	5	5	13	12	6	1	1	4	6	4	1	3	3
Whooping Cough ...	3	14	...	8	2	7	5	9	3	10	8	9	2
Croup, not spasmodic	8	4	4	6	8	4	1	4	3	..	5	2	2
Typhus Fever .....	...	...	...	...	...	...	...	...	...	...	...	1	...
Enteric Fever .....	6	4	7	8	3	4	4	5	8	12	13	15	16
Diarrhoea .....	25	18	5	11	23	24	10	41	13	69	33	52	101
Rheumatic Fever ...	5	2	1	...	2	4	1	2	3	2	4	7	3
Erysipelas .....	2	1	2	2	...	1	...	4	3	2	3	1	...
Phthisis .....	27	25	23	30	27	32	33	28	33	41	42	43	52
Bronchitis, Pneumonia and Pleurisy .....	65	61	62	64	95	137	102	118	67	131	112	150	138
Heart Disease .....	23	23	30	39	37	41	40	43	45	47	53	65	64
Injuries .....	11	6	7	15	8	15	8	7	11	14	16	9	16
Other diseases .....	175	151	159	204	227	217	279	251	274	315	327	360	363



## II.—ACTION TAKEN TO PREVENT THE SPREAD OF DISEASE.



### A.—NOTIFICATION OF INFECTIOUS DISEASE.

Notification of infectious disease is enforced under Section 75 of the Blackpool Improvement Act, 1879, under which smallpox, infectious cholera, measles, typhus, typhoid, scarlet, relapsing or puerperal fever, or diphtheria, are notifiable diseases. I must again call attention to the fact that the occupier of a building in which a case of one of the above diseases occurs is liable to the infliction of penalties if he does not forthwith notify the existence thereof to the Medical Officer of Health, and that he will not escape from the attendant troubles by purposely not calling in a medical man.

There is still a difficulty in obtaining notification of cases of "puerperal fever," but since an authoritative opinion on the subject has been obtained, it cannot be permissible to allow failure of notification to pass unnoticed on the grounds of the vagueness of the term "puerperal fever." In interpreting the law it is the usual practice of the Courts of Justice to determine what was in the mind of the Legislature at the time the Act was passed, and at that time the description of the disease contained in recognised text-books included many distinct affections. Since then these affections have been more accurately differentiated, and to such an extent that the term "puerperal fever" has been expunged from the last edition of the "Nomenclature of Diseases," issued with the authority of the Royal College of Physicians, but it is there stated that puerperal septicæmia, puerperal pyæmia, and puerperal sapræmia, are frequently included under that term. To guide Medical Officers of Health in dealing with cases of failure to notify this class of disease, the London County Council sought the opinion of the Royal College of Physicians,

London, in the latter part of 1898, on the subject. The reply which was given after consideration by a committee, was: "That this committee is of opinion that, with a view to the limitation of dangerous infectious diseases, the London County Council would be acting rightly in adopting the view that the expression "puerperal fever" as contained in Section 55 of the Public Health (London) Act, 1891, should be taken to include septicæmia, pyæmia, septic peritonitis, septic metritis, and other acute septic inflammations in the pelvis, occurring as the direct result of child-birth."

The reply of the Obstetrical Society of London to a similar question was: "The Council of the Obstetrical Society is of opinion that most of the diseases mentioned are intended to be included under the name of "puerperal fever" in the Public Health Act. It is also of opinion that an inclusive definition should be added after the words "puerperal fever," in the following form—"That is, septicæmia and pyæmia, including peritonitis, and all cases of acute pelvic inflammation occurring in connection with child-birth."

An authoritative opinion having now been obtained on this point from the highest medical authorities in the country, I shall now feel it my duty, if necessary, to recommend prosecutions for failure to notify the existence of cases which are intended to be included under the term "puerperal fever."

During the year five cases came to my knowledge, of whom only one recovered, and that was a case taken into the Infectious Diseases Hospital. Besides these four deaths there was another occurring in December after abortion, which I have classified under heading "puerperal fever."

The following cases of infectious disease were notified during the year and are arranged in tabular form to shew the number of cases each month :—

**TABLE VII.**

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
Measles .....	21	4	26	32	4	7	4	7	10	9	18	117	259
Scarlet Fever ...	13	10	5	3	3	4	5	13	5	10	4	2	77
Diphtheria .....	2	2	...	1	...	1	1	1	2	...	...	...	10
Enteric Fever ...	7	7	4	3	1	2	7	7	12	8	4	5	67
Puerperal Fever	1	...	...	...	2	...	...	...	1	1	...	...	5
TOTALS. ....	44	23	35	39	10	14	17	28	30	28	26	124	418

The number of houses infected with the different diseases is given in the following table :—

**TABLE VIII.**

NUMBER OF HOUSES INFECTED.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
Measles... ..	9	3	17	14	3	5	4	7	5	8	9	67	151
Scarlet Fever ...	13	7	2	3	1	3	4	13	5	7	4	1	63
Diphtheria .....	2	2	...	1	...	1	1	1	2	...	...	...	10
Enteric Fever ...	7	7	4	2	1	2	7	6	12	8	3	5	64
Puerperal Fever	1	...	...	...	2	...	...	...	1	1	...	...	5
TOTALS. ....	32	19	23	20	7	11	16	27	25	24	16	73	293

The accompanying Table gives the number of infectious cases notified as compared with the previous year, the deaths from these diseases, the percentage case mortality, and the death-rate from each disease per 1,000 inhabitants in comparison with the similar rates for the 33 great towns during 1898.

TABLE IX.

DISEASE.	Cases Notified.		Cases Notified per 1,000 inhabitants.	Deaths in 1898.	D.R. per 100 cases.	D.R. per 1,000 inhabitants.	D.R. per 1,000 inhab. for 33 great towns.
	1898	1897					
Smallpox .....	...	...	...	...	...	...	...
Measles .....	259	794	5·703	7	2·70	0·154	0·56
Scarlet Fever .....	77	177	1·715	5	6·41	0·110	0·14
Diphtheria .....	10	7	0·220	3	30	0·066*	0·31
Enteric Fever .....	67	50	1·475	16	23·87	0·352	0·20
Typhus Fever .....	...	1	...	...	...	...	...
Puerperal Fever ...	6	2	0·132	5	...	0·110	...
Whooping Cough...	...	...	...	2	...	0·044	0·42
Diarrhoea .....	...	...	...	101	...	2·224	1·22

\* Including 2 deaths from 'Croup,' the Diphtheria death-rate was really 0·110.

The cost of notification in fees to medical men has been as follows :—

	£	s.	d.
Measles.....	16	7	6
Scarlet Fever ...	7	17	6
Diphtheria .....	1	0	0
Enteric Fever .....	7	5	0
Puerperal Fever .....		10	0
	£33	0	0

## SMALLPOX.

In July I was notified of a case of disease suspected to be smallpox. Although doubtful as to its being really a case of the disease I decided to isolate it in the old Sanatorium and watch events. After the lapse of a day or two and stringent inquiries, it was quite clear that what I was dealing with was a case of chicken-pox, complicated with acne, both affections being aggravated by the patient having consumed large doses of sulphur in various patent medicines and other forms. The infection of chicken-pox was traced to a child who had brought the disease to where he was staying.

We have therefore been free from any case of smallpox since August 1895. Since 1895 I have recommended that Blackpool enter into a combination with adjoining districts for the provision of a hospital for smallpox purposes alone, and since the formation of a Joint Hospital Board from the districts of the Rural District Councils for the Fylde, Garstang and Preston, I have advised that Blackpool endeavour to enter into the scheme in one form or other. The provision at the old Sanatorium is only a makeshift, and I am strongly of opinion that patients suffering from smallpox should be as well cared for and provided for as those suffering from the other infectious diseases. They get as much care, but no one can say that the old Sanatorium is a pleasant place to send a patient to. The Vaccination Act of 1898 may not have such alarming results in bringing about the wholesale non-vaccination of the community which at first appeared likely, and I am pleased to see that as a community Blackpool has not availed itself to any appreciable extent of the "conscientious objector" clause, yet many communities whose inhabitants visit Blackpool largely have done so, and if they get smallpox it is most probable that it will be introduced here. Under the circumstances it is necessary that we should be prepared to battle with it with every available weapon. It seems as if the present stiff-necked generation will have to go through a few epidemics of smallpox like their forefathers did before being convinced of the efficiency of vaccination. But given a perfect administration of compulsory vaccination and re-vaccination it would be unnecessary to spend any money in the provision of hospital accommodation for smallpox cases.



The money we spend now is out of deference to the opinions of a misguided minority.

#### MEASLES.

Measles which had been widely prevalent in March and April 1897, never quite died down during that year, becoming slightly more prevalent as one would expect in December. In January 1898 this was maintained with 21 cases. It then remained more or less quiescent until March and April, after which there were no cases to speak of until November and December, when there were 18 and 117 cases respectively.

During the year there were a total of 259 cases with 7 deaths. Of these 28 were removed to hospital and no death occurred amongst these cases.

Claremont Ward was chiefly affected, after which comes Talbot, Foxhall, and Waterloo Wards. (See Table B).

All through the year the influence of schools in spreading the infection of measles was most marked, and failing notification of measles we should have had an epidemic which would have burnt itself out by using up all available material, *i.e.*, affecting every susceptible person. Any Medical Officer of Health who attempts to curtail the ravages of measles must be prepared to engage on a more prolonged campaign against it than one who comes in and closes all the schools in the district after it has got firm hold. The former will always have a certain proportion of susceptible children around him, the latter will have to wait 4 years for a new infant population to arise.

In February an infants' school in South Shore became infected by a child attending whilst in an infectious condition, and at the same time a private school near became likewise infected.

In April a second private school in South Shore became infected, and this was closed.



The cases in May, June, July, August and September are accounted for by visitors becoming ill with the disease here, having contracted the infection at home.

The few cases in October and November are due to a private school for boys in Bank Hey Ward becoming infected. Then a private school for girls in Brunswick Ward, which was attended by members of the same families as attended the previous school, had a few cases. But the larger proportion of the cases was due to the infants' school in Ashburton Road becoming infected. This was closed in December, a week earlier than usual and all the schools in the town were kept closed after the Christmas holidays.

#### SCARLET FEVER.

There were 77 cases with 5 deaths or a case mortality of 6·5 per cent., and a Death-rate of 0·110. The cases and deaths were less than in any year since 1892 except 1894, when there were 76 cases and 4 deaths, but the death-rate that year was 0·132.

In 1892 there were 70 cases and 4 deaths, with a death-rate of 0·149. In 1891 the cases were 57 and the deaths 4, the death-rate being 0·158.

The disease was most prevalent in January, August, February, and October, and affected chiefly Foxhall, Talbot and Brunswick Wards.

Most of the cases were sporadic in their origin and could not be traced to any known cases. Milk could not be proved to be the cause of any of these cases, although the milk supply in every case was thoroughly investigated.

The following occurrences during the year seems to me worthy of mention as shewing the various ways the infection may be carried :

In January two cases occurred in connection with a small private school for boys in the town. Subsequently a scholar of a ladies' school, where sisters of the boys affected attended, was notified to be ill of the disease.

A case in this month was not discovered to be ill from the disease until desquamation was freely occurring some weeks afterwards.

In April there was an imported case in a medical student, who although he was not attending scarlet fever himself, was lodging with a fellow student who was.

In June there was an imported case from Liverpool, the child being sent away from home to escape the disease, there being a case of scarlet fever there. In November a case was similarly imported from Walsall. These two cases shew the wrong policy, which I believe is by no means uncommon, of sending away inmates who have been exposed to infection to other towns, and especially health resorts. Medical Officers of Health in inland towns are very fond of tracing infectious disease to health resorts and making strong remarks thereon, but it is obvious that if such cases do occur the original infection comes from these towns themselves.

A woman that was confined on June 14th, developed a scarlatinal rash on June 16th, and subsequently desquamated in such a manner as to shew that it was an undoubted case of scarlet fever.

Of the five cases in July two were without the slightest doubt imported.

Of the thirteen cases in August, four of the cases were imported. During this month one of the clerks in the Public Health office contracted the disease.

One of the thirteen cases notified in this month proved to be a case of *pityriasis versicolor*.

I discovered a child desquamating from scarlet fever, who had been taken out drives, walks, &c., whilst in that condition. The father disputed my opinion but called in a medical man who confirmed it, and the case was removed to hospital.

In September one of the cases was a chemist's assistant and the possibility is that he contracted the disease over the counter.

In October I discovered in Queenstown another case which was desquamating. This was clearly the cause of four other cases in the immediate neighbourhood, through other children in the house either playing in the street or going to the same school with the secondary cases.

On November 9th a child developed the rash of scarlet fever, her sister having come home from Huddersfield on October 24th apparently convalescent from scarlet fever which had commenced on September 1st, *ie.*, 54 days before.

During the year there were three 'return' cases, *ie.*, where the source of infection seemed to be children who had shortly before been discharged from the Infectious Diseases Hospital. This happens in connection with every Infectious Diseases Hospital at times, and it seems to me to emphasize the necessity of providing accommodation by which scarlet fever patients could spend a few days after their discharge and disinfection before being sent home amongst their relatives.

#### DIPHTHERIA.

There were 10 cases of this disease notified with 3 deaths, as compared with 7 cases and 3 deaths in 1897. There were 2 deaths from "membranous croup," which would doubtless be deaths from diphtheria. I have included these two deaths in the zymotic rate as deaths from diphtheria.

One of the cases which died was a visitor, another of our cases contracted the disease outside.

There were 4 cases each in Talbot and Foxhall Wards.

#### ENTERIC FEVER.

There were 67 cases of the disease, with 16 deaths, as compared with 50 cases and 15 deaths in 1897. The case mortality is therefore very high, namely 23·9, so that either the mild cases of the disease fail to be notified or else the disease is of a severe type. I suspect it is a little bit of both. At any rate, the cases I saw in the Infectious Diseases Hospital were mostly of a severe type. The death-rate from enteric fever was 0·352, as compared with only 0·20 in the 33 great towns.

Just as in the previous year, Brunswick Ward was the most severely affected, and after that Talbot Ward.

There did not appear to be anything common to these cases, so that neither the water supply nor the milk supplies were suspected. It is most discouraging and disappointing that with all our efforts to keep the sanitary condition of our houses perfect, yet we do not succeed in reducing this disease to a minimum. There is no doubt that there is some cause at work which we have not yet found out. I am preparing a special report on this subject, and trust that I shall gain some further knowledge as to the cause of the special incidence of the disease in Blackpool. Amongst causes of the disease I suspect, chiefly, soil contamination, due to imperfectly and improperly paved back yards, by unformed back streets and passages, and also through the use of wooden uncovered tubs for household refuse. Most of the liquid thrown in or any rain falling thereon percolates through into the soil, and causes the requisite amount of organic material which has been found necessary to render it a suitable nidus for the development of the typhoid bacillus, and other bacilli. Then again, the imperfect condition of our sewerage system, and the presence of a number of cesspools, would appear to be the cause in some cases, though Foxhall and Waterloo Wards, where these mostly exist, are not the wards chiefly affected.

The better cleansing of the sewers by flushing, especially by the use of automatic flushing tanks at the dead ends filled with seawater, would also, in my opinion, lessen the morbidity and mortality from this disease.

Most of the cases contract the disease in a direct manner by the consumption of some article of food which has been infected in some way or other, though there are almost insuperable difficulties in tracing this in any given case, owing to the period of infection being tolerably long, the onset of the disease insidious, and the condition of the patient being such when he comes under observation, that he cannot give reliable information.

### PHTHISIS OR CONSUMPTION.

There were 52 deaths from this cause, 7 of them being visitors. An offer was made to disinfect the house and premises in every case, free of charge. An answer was received from nearly every one. The usual answer was that the room, etc., had been thoroughly cleaned, and *they* saw no cause for any further trouble. I prevailed upon 13 occupiers, however, to have thorough disinfection carried out.

The offer, which has been made now for several years, to receive notification of any case of the disease, and to disinfect premises during the illness at intervals, has not met with any response.

### DIARRHŒA.

There were 101 deaths which I classified as due to this cause, viz., 84 under 1 year old, 8 over 1 year and under 2 years old, 1 over 2 years and under 3 years, 5 over 25 years and under 65 years, and 3 over 65 years of age.

Of the 84 children under 1 year old, 9 were illegitimate.

In Talbot Ward there were 28 deaths, in Foxhall 25, in Waterloo 17, in Claremont 16, in Brunswick 14, and in Bank Hey 1.

In the five weeks ending July 30th, there were 6 deaths, in the four weeks ending August 27th, there were 22 deaths, in the four weeks ending September 24th, there were 42 deaths, and in the five weeks ending October 29th, there were 23 deaths.

In the first quarter there was 1 death, in the second 4, in the third 70, and in the fourth 26 deaths.

In Chart I. the relation between the deaths from diarrhœa, the temperature of the air, the temperature of the earth at four feet, and the notified cases of enteric fever is shewn graphically.

In classifying the deaths, I have included all cases in which "gastro-enteritis" is given as the primary cause. There is no doubt that there is great disparity amongst Medical Officers of Health in classifying this disease, and hence in making comparisons this possibility of difference must not be forgotten.



I believe the causes of the disease in Blackpool are chiefly improper feeding of infants, want of cleanliness in the yards and sculleries of houses, improper storage of milk in the houses, the milking of cows in such a manner that dirt, and especially the excreta of the animals, finds access thereto, back yards and passages not being covered with an impervious surface, and the storage of household refuse in uncovered wooden tubs, instead of in covered receptacles made of some non-absorbent material,

A more extended report is being prepared on this subject.

#### B.—ISOLATION.

The percentage of cases of scarlet fever removed to the Infectious Diseases Hospital has increased from 73 in 1895, 77 in 1896, and 85 in 1897, to 89·7 in 1898. This gradual increase in proportion of the cases removed, shews that the hospital is performing excellently the work it was intended to do, and that its administration, no matter what difficulties it has to contend with and criticism to meet, is giving general satisfaction.

The percentage of cases of enteric fever removed, increased from 44 to 56·7, although towards the end of the year I have had rather to prevent cases being removed too late, when intestinal hæmorrhage with a fatal result is likely to occur, no matter how carefully the removal be made. It is earnestly to be wished that in the first place the patients' friends should decide definitely at the beginning of the case, to either send it into the hospital or keep it at home, and not come running to the Health Office wishing it to be removed when almost moribund, on the grounds that they are tired out with nursing. In future I shall strive my best to prevent any such action being taken. Secondly, it would be better if we were informed earlier that a case was suspected to be enteric. It is not a disease that one need wait to be mathematically accurate as to its diagnosis. If a case of any other disease were admitted into the enteric fever wards, it would not contract the disease. There is no doubt whatever that early removal to hospital conduces to recovery.



The above statistics appear to me to speak more eloquently than words as to its efficiency, and reflect great credit upon the Matron, Miss Cain, and her nurses, for the manner in which they perform their very responsible, and at times unpleasant, duties. During the year, two of the nurses contracted enteric fever whilst in the execution of their duty. One of these cases, who I found then was also infected with tuberculosis, died from meningitis. This is the first death we have had amongst our nursing staff since the Institution was opened, and cast a gloom over the place for many months, as the nurse was a favourite with the staff and the patients, being most conscientious and painstaking in the execution of her duties.

There is more real heroism shewn in dealing quietly and without the excitement of battle in the war against infectious disease, than in fighting against barbarians with Maxim guns, but the warriors get all the glory.

**TABLE X.**

Patients admitted to the Sanatorium during the Year 1898.

No. of cases notified.	DISEASES.	Total admd.	MALES.		FEMALES.		Dis-charged.	Died	Remaining i Hospital, Dec. 31st,	
			Under 12 years	Over 12 years	Under 12 years	Over 12 years			1898	1897
77	Scarlet Fever ...	70	20	14	28	8	82	5	4	21
67	Enteric Fever...	38	2	20	5	11	26	10	2	...
10	Diphtheria .....	4	...	2	2	...	3	1	...	...
259	Measles .....	28	15	1	9	3	23	...	5	...
6	Puerperal Fever	1	...	...	...	1	1	.	...	...
...	Other Diseases	1	...	1	...	...	1	...	...	...
...	Scarlet Fever outside Boro'	5	...	1	4	...	6	..	...	1
...	Enteric Fever outside Boro'	1	1	...	...	...	1	...	...	...
419	Totals.....	148	38	39	48	23	143	16	11	22

One case of suspected smallpox was admitted into the Old Sanatorium. The father of some measles patients was admitted, and a baby two weeks old came in with its mother, who was suffering from scarlet fever, but it was sent out next day.

Of the five deaths from scarlet fever, one died on the day of admission ; the death from diphtheria was the day after, whilst two of the cases of enteric fever died on the third day of admission.

In Table XI. I give the number of cases treated in the hospital since it was opened in 1891, and also the percentage mortality amongst them as compared with that amongst the patients treated outside during the same time. In all instances the mortality in hospital is less, particularly so in the case of measles and scarlet fever. With enteric fever and diphtheria there is a selection of cases, *i.e.* to say, that an undue proportion of the severe cases are sent into hospital. This applies also, but not to the same extent, to scarlet fever.

**TABLE XI.**

DISEASE.	Cases treated in Hospital	Deaths.	Per cent. of Mortality.	Cases treated at Home.	Deaths.	Per cent. of Mortality.
Measles ... ..	221	1	0·45	1781	55	3·08
Scarlet Fever.....	712	32	4·49	228	22	9·64
Enteric Fever.....	227	38	16·7	192	38	19·79
Diphtheria ..... ..	37	11	29·7	38	12	31·5
Typhus Fever.....	1	1	100	...	...	...
Other Diseases.....	11	4	...	...	...	...
TOTALS... ..	1209	87	7·19	2239	127	5·67

For the financial year, ending March 31st, 1899, the cost of the hospitals was :—

	£	£
<b>INFECTIOUS DISEASES HOSPITAL.</b>		
Matron and Porter .. .. .	112	
Nurses and their Expenses .. .. .	99	
Provisions for Inmates, Staff, etc. ... ..	386	
Domestic Servant and Laundress ... ..	57	
Gas, Coal, Water, Rates and Taxes .. .. .	151	
Alterations and Repairs .. .. .	95	
Gardening .. .. .	72	
Medicine and Medical Appliances.....	19	
Advertising, Printing, etc. ....	9	
Sheets, etc. ....	15	
Washing and Wringing Machines, Linoleum, etc. ....	30	
Disinfectants, Matron's and Nurses' Uniforms, Cleaning Materials and Sundry Expenses.. .. .	102	
	<hr/> 1,147	
Less Receipts from Inmates .. .. .	98	
	<hr/> 1,049	
Interest and Sinking Fund .. .. .	316	
	<hr/> 1,365	
<b>OLD SANATORIUM.</b>		
Rent of Site .. .. .	6	
Gas, Coke, Coal and Water .. .. .	11	
Nurses .. .. .	1	
	<hr/> 18	
	<u>£1,383</u>	

During the financial year, April 1st, 1898, to March 31st, 1899, the average stay in the hospital of the 165 patients was 32·37 or 5,342 days, but two persons who were not patients were in nine days.

Not including in the cost of the hospital the interest and sinking fund, the cost per week per patient was £1 10s. 0·1d., or £78 os. 5d. per year. Deducting the amount received from patients, and including interest and sinking fund, the actual cost to the rate-payers of each patient averaged £1 15s. 8·5d. per week, as compared with £1 3s. 6d. in the financial year 1897-8. In this cost, the cost of disinfecting articles sent from the Borough to be disinfected is included.

### III.—GENERAL SANITARY CONDITION OF THE DISTRICT.



#### A.—REPORT OF THE INSPECTOR OF NUISANCES.

*To the Chairman and Members of the Sanitary Committee.*

GENTLEMEN,—I have the honour to present to you my eighteenth Annual Report of the work carried out under the superintendence of the Medical Officer of Health by my branch of the Sanitary Department during the year 1898.

I give hereunder the figures for the past year's work together with similar figures relating to 1897 for the purpose of comparison :—

					1897.	1898.
Complaints received ...	...	...	...	...	113	114
Houses and other premises inspected ...	...	...	...	...	2953	2552
Houses where sanitary defects were found	...	...	...	...	959	1181
Houses and other premises re-inspected ...	...	...	...	...	2210	3032
Notices served for the Abatement of Nuisances.	{	Council	...	...	223	205
		Preliminary...	...	...	638	838
		Verbal	...	..	202	93
		Letters	...	...	157	158
					1220	1294
HOUSE DRAINS TESTED—						
New Houses	{	satisfactory	..	...	891	930
		unsatisfactory	...	...	221	244
Other Houses	{	satisfactory	...	...	290	361
		unsatisfactory	...	..	580	1027
House drains re-tested	...	...	...	...	525	503
Total number of tests made	...	...	...	..	2371	3052
Number of sanitary defects repaired	...	...	...	...	2188	2388
Houses where sanitary defects were repaired	...	...	...	...	487	506
DRAINS—						
Drains laid, re-laid, and disconnected	...	...	...	...	294	367
Drains repaired and cleaned out	...	...	...	...	223	118
Unsuitable gully traps replaced by properly trapped gullies, and new gullies fixed	...	...	...	...	316	288

## W.C.'s—

1897. 1898.

New w.c.'s fixed in lieu of privies and defective w.c.'s	...	...	...	...	50	56
Waterclosets repaired	...	...	...	...	227	255
Fittings and water provided for w.c.'s	...	...	...	...	70	85
W.C. Soil pipes repaired and ventilated	...	...	...	...	83	151

## REFUSE RECEPTACLES—

Ashpits abolished	...	...	...	...	43	27
Ashtubs provided	...	...	...	...	123	51
Ashpits rebuilt on approved system	...	...	...	...	12	23
Manure receptacles provided	...	...	...	...	—	2
Cesspools abolished	...	...	...	...	59	34
New cesspools built	...	...	...	...	1	—
Pail closets substituted for privies	...	...	...	...	—	—

## WASTE PIPES—

Bath, lavatory, slopstone, and rainwater waste pipes, disconnected over gullies	...	...	...	...	130	123
New slopstone waste pipes fixed	...	...	...	...	78	83
New rain-water pipes fixed	...	...	...	...	42	47
Rain-water pipes and roof gutters repaired	...	...	...	...	30	35
Slop-hopper waste pipes treated as soil pipes	...	...	...	...	13	12

## MISCELLANEOUS—

Houses cleaned and limewashed	...	...	...	...	9	7
Walls of houses cemented	...	...	...	...	2	4
Floors re-laid with flags or in cement	...	...	...	...	33	43
Back yards repaired	...	...	...	...	117	108
Back yards flagged	...	...	...	...	31	288
Back yards concreted	...	...	...	...	21	—
Back passages cleansed	...	...	...	...	63	31
Accumulations removed	...	...	...	...	84	57
Old wells filled in and F.W.W. provided	...	...	...	...	—	—
Premises disused as sleeping apartments	...	...	...	...	—	—
Animals removed from improper situations	...	...	...	...	13	1
Roofs repaired	...	...	...	...	13	17
Chimneys raised to abate smoke nuisance	...	...	...	...	1	—
Rooms ventilated	...	...	...	...	1	3
Premises other than dwellings closed	...	...	...	...	—	—
Letters (other than those relating to nuisances)	...	...	...	...	704	631
Foundations of houses drained	...	...	...	...	—	2
Smoke observations	...	...	...	...	—	30



## UN SOUND FOOD.

## DESTROYED UNDER MAGISTRATES' ORDERS—

20 rabbits.  
 113½ haddocks.  
 2 boxes of haddocks.  
 252 kippered herrings.  
 2 boxes of mackarel.  
 1 box of herrings.  
 6 quarts of cockles.

Three prosecutions were entered upon for exposing unsound food for sale as a result of these seizures. In one case a fine of £5 and costs, and in another £1 and costs, were inflicted. The third case was dismissed.

## DESTROYED WITH OWNERS' CONSENT—

24 couples of rabbits.  
 1,000 herrings.  
 50 lbs. of haddock.  
 5 pecks and 3 stones of sprawns.  
 50 lbs. of beef.  
 3 baskets of fruit.  
 44 crabs.

## INFECTIOUS DISEASES.

	1897.	1898.
Inquiries made into cases of infectious disease ... ..	889	332
Houses disinfected after cases of infectious disease ... ..	671	234
Houses disinfected after cases of consumption ... ..	2	13
Isolation notices served upon householders ... ..	889	332
Isolation notices served upon school managers ... ..	281	153

## ARTICLES REMOVED FROM 177 HOUSES TO SANATORIUM—

Sheets, quilts, blankets and such	885	Carpets	...	...	...	190
Articles of clothing .. ..	642	Rugs and Mats	...	...	...	102
Pillows and bolsters ... ..	636	Curtains	...	...	...	88
Books ... ..	16	Cushions	...	...	...	65
Beds ... ..	205	Table-cloths	...	...	...	13
Mattresses ... ..	184	Miscellaneous Articles	...	...	...	311

Total number of articles disinfected 3,337, and also 3,784 articles from the Sanatorium.

Total 7,121.

## SALE OF FOOD AND DRUGS ACTS.

Samples were taken for analysis according to the provisions of the above Acts, viz. :—

Coffee .....	6	Lard.....	2
Butter .....	16	New Milk .....	22
			<hr/>
			46

One sample of new milk contained 3·03% of fat, 7·32% of other solids, 10·35% total solids, and that upwards of 15 parts of water have been added to every 100 parts of the poorest milk.

One sample of new milk contained 3·31% of fat, 7·66% of other solids, 10·97% total solids, and that upwards of 10 parts of water have been added to every 100 parts of the poorest milk.

The magistrates took both cases together, fined the defendant costs in one case and £4 and costs in the other.

Deficient in cream .....	4	Remarkably rich milk ...	1
Rich milk .....	4	Slightly doubtful .....	1

## GENERAL REMARKS.

Of the 506 houses put into a condition of sanitary repair, 311 were in the northern section of the town, and 195 in the southern section.

My thanks are again due to the owners and agents of property, for their readiness, as a general rule, to meet in a fair spirit, the demands of the Sanitary Department. I am at all times willing to confer with them as to any alteration of the sanitary arrangements of houses.

I am, Gentlemen,

Your obedient servant,

FRANCIS MACDONALD,

*Inspector of Nuisances.*

PUBLIC HEALTH OFFICES,

FEBRUARY, 1898.

### B.—THE CONDITION OF DWELLINGS.

One of the main efforts of the Sanitary Department has been to test the drains of new houses before occupation, and see that the work has been done in a thorough manner, and to repeatedly test the drains of occupied houses when there is complaint of bad smells or illness, or the occurrence of cases of certain infectious diseases, or suspicion that the drainage arrangements are not what they should be, or if a number of years has elapsed since previously tested. A large proportion of time was taken up in testing the drains of 1,174 new houses.

Of 1,388 occupied houses, the drains of 361 were found satisfactory. Of the 1,027 houses in which some defect or other was found, 506 were made sanitary during the year.

Our requirements are constantly increasing in severity, but I regret that it is not yet possible to apply the water test in all cases, since it is not demanded that the drains of new houses should satisfy this test.

We are constantly coming across cases where water is found in stagnant pools below the wooden boards forming the ground floor of houses. This must prove injurious to health, either in causing consumption, chest diseases, rheumatism, or even diphtheria. This danger could be averted by enforcing the bye-law with respect to the cementing, asphaltting, etc., of the sites of all new houses. To my mind this is a most important provision, but I have not yet succeeded in convincing the Building Plans Committee of the necessity therefor.

We are in many instances getting the drains of cottage houses with a w.c. in the yard and not in the house, ventilated by two untrapped openings in accordance with the bye-laws, although I regret that it is by no means a universal custom, and is not insisted upon by the Building Plans Committee.

### C.—WATER SUPPLY.

The whole Borough is almost supplied with water by the Fylde Water Company. This water is an upland surface-water, collected

from the Grizedale and Bleasdale moors. The gathering ground is a very good one, and free from any danger of animal contamination. The water contains a fair amount of peaty matter, and requires to be carefully filtered. From the complaints received sometimes as to the turbidity of the water, I suspect that filtration at times is not practised, or else it is done very inefficiently. There were strong complaints in the season of the want of pressure in the North Shore district, but it is to be hoped that this will not occur again, through the new 24 inch main direct from the reservoir to Warbrick Road being connected during the present year.

#### D.—REMOVAL AND DISPOSAL OF HOUSEHOLD REFUSE.

The work of this sub-department during the year has been very heavy, and difficult to carry out, by reason of the large number of houses in various parts of the Borough which drain into cesspools, most imperfectly constructed. This has necessitated the emptying of their liquid contents at least once a week, often under great difficulties. A further difficulty has also been the disposal of this liquid sewage afterwards.

Now that the sewerage scheme is completed, and the two pumping stations are in working order, these cesspools are being rapidly abolished. This will not only be a great relief to this department, but should also conduce to the greater health of these localities.

#### SUMMARY OF WORK DONE.

	1897.		1898.		Increase or Decrease.
Loads of refuse carted to the destructor	19,405	...	24,313	...	† 4,908
Do. do. tip..... ..	2,475	...	23	...	— 2,452
Do. do. oyster shell heap ...	140	...	—	...	— 140
Do. do. on land in Borough	4,503	...	6,334	...	† 1,831
Total loads of refuse carted .....	26,523	...	30,670	...	† 4,147
Do. coke carted to cremators	635	...	64	...	— 571
Total loads of refuse and coke.....	27,158	...	30,734	...	† 3,576

The sign † means increase, and — decrease.

On December 31st, 1898, it was found that there were—

		1897.
Houses with ashtubs.....	8,920 ...	—
Houses with ashpits .....	419 ...	—
Houses with modified ashpits .....	359 ...	—
Houses with no proper receptacle .....	142 ...	—
Total houses .....	9,840 ...	—
Houses with cesspools .....	84 ...	—
Houses with pail closets .....	258 ...	—
Houses with privies .....	88 ...	—
Shops with refuse receptacles .....	1,642 ...	—
No. of ashpits in Borough .....	281 ..	251
Do. modified ashpits .....	359 ..	325
Do. privies .....	66 ..	88
Do. cesspools .....	44 ...	82

For the financial year, April 1st, 1898, to March 31st, 1899, the cost of emptying ashpits was £4,409, *i.e.* per inhabited house of 9s. 5½d., as compared with 9s. 6½d. in 1897-98.

The number of loads of refuse and coke carted in the financial year was 30,321, that is 2s. 10½d. per load, as compared with 2s. 8½d. per load in 1897-98.

The cost of the refuse destructor during the financial year, including interest and sinking fund, was £2,627, and the loads burnt 24,759, at a cost of 2s. 1½d. per load consumed, as compared with 2s. 11½d. per load in 1897-98.

#### E.—THE PUBLIC SLAUGHTER-HOUSES.

During the year the following animals have been slaughtered in the slaughter-houses of the Corporation, as compared with the previous year.

	1897	1898
Beasts—Cows .....	202 ...	197
Heifers ..	883 ..	1,143
Bullocks .....	218 ...	325
Bulls .....	9 ...	1
	1,312 ...	1,666
Calves.....	502 ...	449
Sheep ..	19,631 ..	24,619
Pigs..	1,580 ...	1,347
Totals.....	23,025 ...	28,081

The livers of 493 animals—401 sheep, 63 heifers, 13 cows, and 16 bullocks—were affected with “flukes,” and were destroyed.



The animals affected with tuberculosis in varying degrees were 9 cows, 5 heifers, and five pigs. In all these cases the viscera were detained and burnt, the carcass being carefully dressed by the removal of all the large lymphatic glands. Besides this, certain portions of the carcass were detained, in some cases, *i.e.*, the flesh around any specially diseased part was cut out and destroyed. This was chiefly the ribs. In all, 257 lbs. of beef was thus confiscated.

The livers of 13 pigs were cirrhotic, and the kidneys of 2 pigs had cystic disease.

The livers of 8 bullocks, 7 cows and 10 heifers, had extensive abscesses in them.

The carcass of a lamb was seized, the animal being affected with acute pleurisy, and that of a sheep because of pulmonary congestion and dropsy.

The viscera and glands, and 28½ lbs. of pork from a pig not properly bled, were given up.

The heads of 3 beasts and 8½ beasts liver were burnt because they were allowed to become putrid.

One lamb that was found dead in the field and another dead in the truck through suffocation, during transit, were cremated.

At the present time eight of the ten slaughter-houses are let to the following butchers :—Messrs. Cocker, Thomas, Bridge, Hull Sowerby, Rainford, Holt, Sykes, Ashurst, Robert Hull, and the Black-pool Co-operative Society.

The public slaughter-house is regularly used by Messrs. Flintoff, Barlow, Whetman, Waring, Noble, Cropper, Wilkinson, Carter, Laycock, Carver, Mitchell, J. Harrison, and R. Harrison. Others occasionally use it.

The pig slaughter-house is regularly used by Messrs. Robinson, Hornung, Walker, and the Co-operative Society.

The public have now the satisfaction of knowing that the above-mentioned firms so conduct their business that both the animals and the carcases are subject to the inspection of public officials in every instance.

It appears to me that the time has now arrived to put into force the provisions of Section 43 of the Blackpool Improvement Act, 1879, with respect to the closure of the few remaining private slaughter-houses in the Borough, by which every one can be closed.

A number of butchers have erected more or less unsuitable slaughter-houses just outside the Borough so as to escape inspection, but it is to be hoped that we shall get power to demand that the viscera and carcases of all animals slaughtered outside the Borough, if not already inspected by a public official, shall be brought to a central station for the purposes of inspection.

#### F.—THE VENTILATION AND FLUSHING OF SEWERS

I have again to repeat my suggestion that the sewers be flushed by placing at the dead ends of all branch sewers, automatic flushing tanks, which could be filled preferably with sea-water.

If this is not done the man-hole at the dead end of each such sewer should, at any rate, be flushed out with sea-water from a tank cart at repeated and regular intervals.

If filth were thus removed from these smaller sewers, the production of sewer gas would be minimised, and there would not be the same necessity for ventilation. Everyone seems to be agreed upon the necessity for some such measures, but for some reason or other the work is not carried out.

#### G.—SMOKE NUISANCES AND BRICK KILNS.

An effort has been made to prevent the nuisance caused by the emission of dense black smoke from certain chimneys in the town. A number of orders of abatement were obtained, the preparation of evidence for which necessitated a great deal of extra work by the officials of the department.

In six cases orders for abatement were granted with costs in each case.

In a subsequent case an order was granted with a fine of 5s. and costs.

In another case the firm was again summoned for not obeying the order of the court, when a fine of 5s. and costs was imposed. These penalties cannot be considered adequate.

Some of the Brick Kilns in the Borough cause at times a great nuisance to certain districts, and seeing that under Section 60 of the Blackpool Improvement Act, 1879, the use of kilns started since 1879, and within 200 yards of dwelling-houses can be stopped. I recommend that it be enforced.

It is quite possible to make bricks otherwise than in open kilns and without a nuisance to the neighbourhood. Under these circumstances I do not see why this industry, no matter how important it may be, should be allowed to be conducted so as to interfere with the amenities of life of the inhabitants.

#### H.—BATHS AND WASH-HOUSES.

I must again recommend the speedy erection of baths for the poorer inhabitants of the town. From my own experience, I can say that they are urgently required, and if they were made use of when erected, they would conduce to the better health of the community by encouraging greater personal cleanliness. A great deal is heard of this subject in the October of every year, but after the November elections the subject is allowed to drop for another year.

#### IV.—METEOROLOGY.

The observations have been taken by Mr. T. Sanderson, Sanitary Inspector, assisted by other members of the Sanitary Staff. During the season telegraphic messages of the state of the weather were sent each forenoon to the *Sheffield Daily Telegraph* and to the *Manchester Evening News*.

The equipment of the department consists of—

(i.) A Standard Fortin barometer kept in the Health Office.

(ii.) A Stevenson-screen containing wet and dry bulb and maximum and minimum thermometers.

(iii.) An earth thermometer at a depth of four feet.

(iv.) A rain gauge.

(v) A Campbell-Stokes Sunshine Recorder, a wind vane, and an anemometer on the North Pier.

The Stevenson-screen, with the thermometers and rain gauge, are kept at the Infectious Diseases Hospital. The tables at the end of the report give the result of the observations for the year. I append here a short summary of the weather for each month of the year. The observations are taken daily at 9 a.m.

On several occasions the sunshine cards were tampered with, so that the sunshine recorded on those days is not correct.

The Campbell-Stokes recorder gives lower readings than other forms of sunshine recorders.

*January* was a dull, dry and abnormally mild month, the average temperature being 6·1 degrees above the average. There was frost on one day only. Rainfall was about the average, but the sunshine was about 25 per cent. below the average.

*February* was a changeable month, but on the whole was mild, and was marked by a large amount of sunshine. The temperature was 1·9 degrees above the normal, and 2·1 degrees above Manchester. Rainfall was slightly below the average. Bright sunshine was about 33 per cent. above the average. Fall of snow on the 4th, hailstorms on 6th, 7th and 20th.

*March* was a remarkably dry and bright month. The temperature was 1 degree below the average, and the rainfall, which was only 0·47 inches, was 1·66 inches below the average, and was one of the lowest in the United Kingdom. The temperature was 1·4 degrees

above Manchester, and 1·5 degrees above Stonyhurst. The bright sunshine was about 45 per cent. above the average. Thunderstorm on the 1st.

*April* was generally a dull and mild month. The temperature was 1 degree above the average, and was 1 degree above the temperature at Stonyhurst, and 0·5 degrees above Manchester. Sunshine was about 8 per cent. below the average, and rain 0·63 inches above. Thunderstorm on the 29th.

*May*. A wet month. Temperature 0·1 degrees above the average, 2·1 degrees above Stonyhurst, and 2 degrees above Manchester. Rainfall 2·33 inches in excess. Bright sunshine was 202·5 hours, or 10 hours more than the average. Severe thunderstorm on the 22nd.

*June*. A dull month, but free from rain until the 18th. On the 28th, a severe thunderstorm. Temperature slightly lower than the average, but 1·3 degrees higher than Stonyhurst and 0·8 degrees than Manchester. Rainfall and Sunshine below the average.

*July*. A bright dry month. The temperature was 0·7 degrees below the average, but it was 1·7 degrees above Stonyhurst and 0·7 above Manchester. Rainfall was only 0·52 inches, being 2·63 inches below the average. Bright sunshine was 240·9 hours or 64·3 in excess.

*August*. A very wet and dull month. Temperature was 1·7 degrees above the average, and was 0·4 degrees above Manchester and 1·6 degrees above Stonyhurst. Rain fell on 21 days with a rainfall of 5·32 inches or 1·94 in excess. Bright sunshine was only 122·8 hours or 27·9 less than usual. Heavy showers of rain on 29th and a thunderstorm on the 19th.

*September*. A warm dry month. The temperature was 58·3 degrees, or 3·1 degrees above the average. Absolute Maximum was 80 degrees on the 5th. The rainfall was only 1·58 inches, or 2·04 inches below the average. Bright sunshine was slightly below the average by 9 hours.



*October* was a very warm month, the temperature being 4·1 degrees above the average. Rainfall was only slightly below the average. There were only 78·3 hours of bright sunshine, or 9·2 hours below the average, but the sunshine card was tampered with on the 10th.

*November* was warmer than usual, the temperature being 2·2 degrees above the average and 1·3 degrees above Stonyhurst and Manchester. Rainfall 3·43 inches was practically equal to the average, as also was the bright sunshine. Frost on five nights only. On 22nd a very heavy fall of snow which averaged 5 inches in depth.

*December.* A very warm month, the temperature being 45·5 degrees, or 6·5 degrees above the average, 1·5 degrees above Stonyhurst and 1·3 degrees above Manchester. There was frost only on two nights. Rainfall was 0·72 inches above the average, and bright sunshine 4·5 hours below. Severe hailstorm on December 2nd. Earth thermometer about 2 degrees above the average.

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**Appendix, Tables, &c.**

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TABLE A (Local Government Board Return).

TABLE OF DEATHS during the year 1898 in the Borough of Blackpool, classified according to Diseases, Ages and Localities.

NAMES OF LOCALITIES.	Mortality from all causes at subjoined ages.								Mortality from subjoined causes, distinguishing Deaths of Children under 5 years of age.																								
	At all ages	Under 1 year	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards	i	Smallpox	Scarlatina	Diphtheria	Membranous Croup	FEVERS.					Cholera	Erysipelas	Measles	Whooping Cough	Dysentery and Diarrhoea	Rheumatic Fever	Phtisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	All other Diseases	Total				
													Typhus	Enteric or Typhoid	Continued	Relapsing	Puerperal																
a	b	c	d	e	f	g	h							5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
Clarendon Ward	120	29	13	4	5	46	32	Under 5 5 upwards													2	1	14				11	1		13	42		
Talbot Ward	184	64	16	7	9	59	29	Under 5 5 upwards	1	1	1	1									2		25			14				36	80		
Bank Hey Ward	38	7	2		6	14	9	Under 5 5 upwards																						6	9		
Brunswick Ward	123	34	8	3	9	48	21	Under 5 5 upwards	2			1										1				2			1	16	29		
Foxhall Ward	194	64	20	9	6	60	35	Under 5 5 upwards			1															4	1			19	42		
Waterloo Ward	84	25	5	3	7	25	19	Under 5 5 upwards													3		25			19			3	39	81		
Kirkham Workhouse (not in the Borough)	16	1			2	8	5	Under 5 5 upwards	1																11	18	6	1		7	30	110	
Other Institutions outside Blackpool	4							Under 5 5 upwards															2	1			5	7	2	29	54	1	
TOTALS	772	224	64	26	44	264	150	Under 5 5 upwards	3	1	2			16							7	2	93			1	56	3		3	117	288	484

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto in Kirkham Workhouse.	19	1	.....	.....	2	11	5	Under 5 5 upwards	Under 5 5 upwards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	3	1	.....	1	10	18
Deaths occurring within the district among persons not belonging thereto.	143	18	10	5	14	66	30	Under 5 5 upwards	Under 5 5 upwards	1	.....	1	.....	5	5	.....	.....	.....	.....	.....	.....	13	2	1	7	18	20	6	55	115

**TABLE B (Local Government Board Return).**

Table of Population, Births, and of New Cases of Infectious Sickness, coming to the knowledge of the Medical Officer of Health, during the year 1898, in the Borough of Blackpool, classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES.	Population at all ages.		Registered Births.	Aged under 5 or over 5.	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital																			
	Census, 1891.	Estimated to middle of 1898.			FEVERS.							Cholera.	Erysipelas.	Measles.	FEVERS.							Suspected Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.					Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.
					Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Enteric or Typhoid.	Continued.				Relapsing.	Puerperal.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.					Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.							
a	b	c	d	e	1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	11	12	13							
Claremont Ward	3464	7572	169	Under 5 5 upwards	.....	3	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	47	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Talbot Ward (H)	6300	10527	369	Under 5 5 upwards	.....	6	1	.....	.....	4	.....	.....	.....	.....	.....	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Bank Hey Ward	2036	2135	37	Under 5 5 upwards	.....	1	.....	.....	.....	3	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Brunswick Ward	4095	6413	161	Under 5 5 upwards	.....	15	1	.....	.....	15	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Foxhall Ward	4905	12489	377	Under 5 5 upwards	.....	3	2	.....	.....	10	.....	.....	.....	.....	.....	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Waterloo Ward	2956	6277	132	Under 5 5 upwards	.....	5	1	.....	.....	13	.....	.....	.....	.....	.....	27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Kirkham Workhouse (not in the Borough)	.....	.....	15	Under 5 5 upwards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						
Total	23846	45414	1260	Under 5 5 upwards	.....	18	3	.....	.....	64	.....	.....	.....	.....	.....	137	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....						

Infectious Diseases Hospital situated in the Ward marked (H).

**TABLE C.**

POPULATION AND DEATH RATES (RESIDENTS) AT VARIOUS AGES.

	BLACKPOOL, 1898.									Eng'nd and Wales 1881-90	Eng'nd and Wales 1881-90
	Per cent. of population living at various ages.		Number estimated living in 1898.		Total Deaths.		Death Rate.		Death Rates of persons at different ages.	Death Rates of males living at different ages.	Death Rates of females living at different ages.
	Males	Females	Males	Females	Males.	Females	Males.	Females			
Under 5 years ...	4.65	5.33	2,114	2,421	148	111	70.01	45.86	57.11	61.64	51.96
5 and under 15...	9.73	10.57	4,420	4,803	12	10	2.71	2.08	2.38	4.54	4.56
15 and under 25	7.57	11.59	3,438	5,266	15	16	4.36	3.04	3.56		
25 and under 65.	19.08	27.49	8,667	12,487	104	93	12.01	7.45	9.23	15.19	12.92
65 and under 75..	1.28	1.87	585	849	29	43	49.60	50.62	50.21	70.50	60.46
75 years and over	0.33	0.47	151	213	21	27	139.58	126.58	131.97	163.05	148.06

**TABLE D.**

ANALYSIS OF MORTALITY.

Average of	BIRTH RATE.	Annual Rate of Mortality from						Proportion of Deaths under 1 year to 1,000 births (Infant Mortality).	Of Infants under 1 year.	Percentage of Total Deaths					
		All Causes (gross D.R.)	All Causes (Cor- rected for Visitors.)	Seven principal Zymotics.	Pulmonary Consumption.	Other Diseases of the Lungs.	Heart Disease.			Under 5 years.	60 years and over	From seven principal Zymotics.	From Pulmonary Consumption.	From other Lung Diseases.	From Heart Disease
1881-85.	29.56	19.5	17.2	1.89	1.49	3.12	1.70	161	24.44	32.5	23.1	10.16	7.68	15.93	7.61
1886-90.	25.18	17.6	15.4	2.11	1.21	3.19	1.40	150	21.5	34.3	26.8	12.3	6.9	18.3	8.1
1891-95.	23.91	18.6	15.3	2.06	1.14	3.91	1.51	183.3	23.82	33.8	24.9	10.88	6.24	20.74	8.2
1891.	22.36	20.0	18.2	2.03	1.2	5.4	1.6	182	21.5	34.1	27.8	10.2	6.3	27.0	8.1
1892.	24.01	18.2	15.3	0.89	1.2	3.81	1.49	158	20.9	29.3	25.4	4.9	6.7	20.9	8.2
1893.	22.47	18.7	14.9	2.68	0.98	4.14	1.51	210.3	25.1	33.2	24.6	14.1	5.2	22.1	8.0
1894.	23.93	15.8	11.9	1.38	1.08	2.21	1.48	159.7	24.1	33.2	24.5	8.7	6.8	13.9	9.3
1895.	26.77	20.06	16.33	3.31	1.24	3.98	1.43	206	27.49	39.3	21.9	16.47	6.19	19.79	7.10
1896.	25.66	17.19	13.84	1.99	1.15	3.06	1.44	158.5	23.6	32.9	27.5	11.6	6.6	17.7	8.4
1897.	26.25	18.57	15.29	2.78	1.07	3.75	1.62	191.3	27.0	37.8	24.1	15.0	5.8	20.1	8.7
1898.	27.74	16.99	13.85	2.99	1.14	3.04	1.41	177.7	29	37.3	25	17.62	6.73	17.87	8.3



**TABLE E.**

Births and Deaths (Residents) in Each Quarter of the Year  
1898.

Quarter ending	Births	Deaths from all Causes.	Seven principal Zymotic Diseases.	Pulmonary Consumption.	Other Lung Diseases.	Heart Disease.	Total Deaths under 1.	Under 5.	65 years and over.
March 26th.....	303	124	5	5	29	10	36	42	28
June 25th .....	336	145	8	14	31	11	35	44	30
September 24th.. ...	336	171	60	11	19	8	79	90	30
December 31st .....	285	189	40	15	36	14	56	84	32
TOTALS....	1260	629	113	45	115	43	206	260	120

**TABLE F.**

Shewing the Several Death Rates (Residents) for Each Quarter  
in the Year 1898.

Quarter ending	Death Rate.		Infant Mortality.	Per cent. of Total Deaths of Deaths.			
	From all Causes.	From 7 Zymotics		From 7 Zymotics.	Of Infants under 1 year.	Of Children under 5 years.	Of Persons 65 years and over.
March 26th ..	11.73	0.47	118.8	4.03	29.03	33.87	22.58
June 25th.....	12.80	0.71	104.1	4.82	24.14	30.34	20.69
September 24th	15.11	5.29	235.1	35.08	46.2	52.63	17.54
December 31st	15.50	3.28	196.5	21.16	29.62	44.44	16.93

## TABLE G.

DEATHS	1801 Quarters.				Totals.	1802 Quarters.				Totals.	1803 Quarters.				Totals.	1804 Quarters.				Totals.	1805 Quarters.				Totals.	1806 Quarters.				Totals.	1807 Quarters.				Totals.	1808 Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
From all causes ...	98	158	128	123	507	123	110	131	124	488	116	115	173	128	532	103	124	132	122	481	156	165	179	161	661	133	141	179	177	630	162	179	214	191	746	142	186	225	219	772
Under 1 year .....	24	23	32	30	109	23	17	27	35	102	29	18	66	21	134	21	29	34	32	116	27	36	71	48	182	26	29	52	42	149	32	42	75	53	203	38	37	00	50	224
Under 5 years.....	31	50	45	47	173	31	24	41	47	143	42	26	79	30	177	29	41	43	47	160	46	59	89	66	360	35	47	66	59	207	47	67	94	74	282	44	48	109	87	288
60 years and over	56	33	36	35	140	33	38	22	37	130	27	29	35	40	131	36	30	33	29	118	47	40	26	32	145	45	33	51	44	173	51	42	43	44	180	.....	.....	.....	.....	
From 7 Zymotics	7	4	24	17	52	2	1	11	10	24	10	7	49	9	75	6	6	20	10	42	12	14	58	25	109	11	12	33	17	73	8	29	56	19	112	5	0	77	45	136
" Pulmonary Consumption	5	10	10	7	32	11	5	12	5	33	6	5	9	8	28	9	10	4	10	33	14	11	9	7	41	10	11	6	15	42	11	6	14	12	43	8	16	13	15	52
" Other Lung Diseases .....	29	68	11	29	137	29	25	17	31	102	43	32	14	29	118	18	14	12	23	67	31	40	26	34	131	30	30	16	36	112	43	26	38	150	32	39	25	42	138	
" Heart Disease	6	13	11	11	41	10	7	17	6	40	6	19	10	8	43	10	13	13	9	45	12	13	9	13	47	0	14	18	12	53	15	16	18	65	12	21	14	17	64	
" 5 Zymotics ...	4	1	6	10	21	.....	.....	3	6	9	5	3	9	8	25	5	4	10	7	26	0	7	5	9	30	8	7	6	11	32	8	24	5	14	51	4	5	7	17	33
" Diarrhoea .....	.....	1	16	7	24	1	.....	8	1	10	1	1	38	1	41	.....	2	10	1	13	.....	2	51	16	60	2	1	25	5	33	.....	1	46	5	52	1	4	70	26	101
" Whooping Cough .....	3	2	2	.....	7	1	1	.....	3	5	4	3	2	.....	9	1	.....	.....	2	3	3	5	2	.....	10	1	4	2	1	8	.....	4	5	.....	0	.....	.....	2	2	



TABLE K.

	Population.	Rate per 1,000.				Total Births.	Total Deaths.	Infant Mortality per 1,000 Births
		Births.	Deaths.		Seven Zymotics.			
			Gross.	Cor- rected.				
1878...	13,000	38·8	21·0	...	5·0	439	274	166
1879...	15,000	36·6	17·8	...	3·06	401	268	122
1880...	15,000	34·0	22·7	...	5·0	510	341	205
1881...	14,229	30·6	18·6	15·8	1·2	436	265	126
1882...	16,000	30·0	22·9	21·0	2·8	480	367	220
1883...	16,000	30·0	19·5	16·6	1·6	480	312	139
1884...	17,212	29·8	19·0	17·1	2·14	513	328	146
1885...	18,031	27·4	17·2	15·2	1·71	494	311	174
1886 .	19,550	25·9	18·9	16·5	2·71	508	370	151
1887...	20,380	25·3	16·0	14·0	2·45	516	327	116
1888...	20,540	24·5	15·6	13·2	1·6	504	322	136
1889...	21,661	26·5	18·7	16·5	1·9	575	406	168
1890...	24,312	23·7	18·5	16·5	1·9	577	451	181
1891...	25,310	22·3	20·0	18·2	2·03	566	507	181
1892...	26,740	24·0	18·2	15·2	0·89	642	488	158
1893...	28,389	22·4	18·7	14·8	2·68	638	532	192
1894...	30,337	23·9	15·8	11·9	1·38	726	481	159
1895...	32,943	26·7	20·06	16·33	3·31	882	661	206
1896...	36,638	25·7	17·19	13·84	1·99	940	630	158
1897...	40,234	26·25	18·54	15·26	2·78	1,056	746	191
1898...	45,414	27·74	16·99	13·85	2·99	1,260	772	178

**TABLE L.**

SHEWING THE PERCENTAGE OF TOTAL DEATHS, OF DEATHS OF CHILDREN UNDER 5 YEARS OF AGE, AND OF PERSONS OVER 60 YEARS OF AGE.

	Total Deaths.	Under 5 Years of Age.	60 and over.	Per cent. of Total Deaths, of Deaths.	
				Under 5 years of Age.	60 and over.
1878 .....	274	103	56	37·8	20·7
1879 .....	268	93	50	34·7	18·6
1880 .....	341	153	59	44·8	17·3
1881 .....	265	80	61	30·1	23·0
1882 .....	367	106	71	28·8	19·3
1883 .....	312	106	76	33·3	24·3
1884 .....	328	101	82	30·7	25·0
1885 .....	311	123	74	39·5	23·7
1886 .....	370	133	89	35·9	24·0
1887 .....	327	107	99	33·0	30·0
1888 .....	322	103	84	32·3	26·0
1889 .....	406	147	93	36·2	22·9
1890 .....	451	156	129	34·5	28·6
1891 .....	507	173	141	34·1	37·8
1892 .....	488	142	130	29·1	26·6
1893 .....	532	177	131	33·2	24·6
1894 .....	481	160	118	33·2	24·5
1895 .....	661	260	145	39·3	21·9
1896 .....	630	207	173	32·9	27·5
1897 .....	746	282	180	37·8	24·1
1898 .....	772	288	194	37·3	25·1



# METEOROLOGICAL OBSERVATIONS.

Lat.—53° 49'. Long.—5° 3' W. H. M.  
1897. 1898.  
Mean Temperature (of Max. and Min. combined)...45°9' ... 50°0' Bright Sunshine... { 1897...1485...58  
Total Rainfall (in inches) ..... 35°76'..... 32°82' Bright Sunshine... { 1898...1386...18

1898.  Month.	Pressure of Atmosphere in month corrected for temp. and press.		Temperature of Air in Month.										Mean Humidity Complete Saturation = 100.	Rainfall.				Bright Sunshine.	Amount of Cloud. 9 a.m. 0=clear; 10=overcast
	Mean	Range.	Means of				Absolute Extremes of				Amount (in inches).	No. of Rainy Days.		Maximum fall in one day.	Date.				
			9 a.m.	All highest	All lowest	Daily Range.	Maximum.	Date.	Min.	Date.						Range.			
January .....	30·231	1·242	43·7	47·9	39·6	8·3	52·8	19th	28·6	10th	24·2	90·6	3·03	17	0·75	2nd	27·66	8·2	
February .....	29·821	969	41·3	46·2	36·1	10·1	52·4	1st	25·4	24th	27·0	81·3	1·94	21	0·23	5th	99·99	5·6	
March .....	29·733	·905	41·0	47·0	33·3	13·7	50·9	18th	24·3	7th	26·6	80·3	0·47	11	0·09	1st	146·71	6	
April .....	29·870	1·683	47·4	54·5	39·0	15·5	66·9	8th	25·6	5th	41·3	79·2	2·27	13	0·69	11th	135·19	6·5	
May .....	29·844	1·305	51·9	58·1	43·6	14·4	69·8	24th	34·3	15th	35·5	74·5	4·35	19	0·63	22nd	202·00	5	
June .....	29·976	·988	58·1	63·9	48·7	15·2	79·5	10th	39·5	1st	40·0	76·5	2·02	12	0·38	23rd & 24th	157·79	5·2	
July.....	30·114	·805	61·3	66·1	51·8	14·3	71·0	22nd	43·2	25th	27·8	70·9	0·52	8	0·12	1st & 3rd	240·90	4·6	
August .....	29·973	·610	61·7	68·3	54·0	14·3	79·6	12th	43·3	21st	36·3	79·3	5·32	21	1·08	9th	122·75	4·8	
September .....	30·057	·807	59·0	64·8	51·85	13·0	80·4	5th	36·8	23rd & 24th	43·6	80·2	1·58	11	0·56	29th	112·47	5	
October.....	29·747	1·466	52·9	58·2	47·6	10·6	68·1	3rd	35·7	13th	32·4	86·0	4·04	19	0·70	16th	78·34	6·4	
November.....	29·795	1·563	45·1	50·4	40·2	10·2	58·8	2nd	24·3	29th	34·5	84·2	3·43	20	0·80	1st	41·55	6·7	
December.....	29·602	1·420	45·3	50·1	40·9	9·2	58·1	4th	27·6	31st	30·5	88·0	3·86	27	0·88	26th	20·93	7·1	

# Direction of Wind at Blackpool during 1898.

1898.	N.	N.N.E.	N.E.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S.W.	W.S.W.	W.	W.N.W.	N.W.	N.N.W.	No of Days in each Month
January .....	1	..	..	..	..	1	9	1	2	3	6	5	1	2	..	..	31
February .....	..	..	1	2	..	..	3	..	..	1	2	8	3	4	2	2	28
March .....	2	..	5	..	3	..	3	..	1	1	2	..	3	1	8	..	31
April... ..	..	..	..	1	2	2	5	2	1	..	8	2	..	2	4	2	30
May .....	..	..	2	5	2	..	3	..	..	..	2	5	2	6	4	..	31
June .....	1	..	1	..	1	2	2	..	2	..	1	6	2	2	10	..	30
July .....	..	..	..	..	..	2	2	..	3	..	4	2	2	4	12	..	31
August .....	..	..	2	4	1	..	5	..	..	1	4	4	5	..	4	..	31
September ...	..	..	3	2	..	..	8	..	1	..	1	9	3	..	..	..	30
October.....	1	..	1	6	5	1	4	1	1	..	2	3	2	1	1	..	31
November.....	..	..	1	8	2	..	6	..	4	..	1	3	1	..	1	..	30
December .....	1	..	1	..	1	..	6	..	2	..	2	7	4	2	3	..	31
Totals .....	6	..	17	28	17	20	56	4	17	6	35	54	28	24	49	4	365

